

Installing Natural under VSE/ESA

This document describes step by step how to install Natural under the operating system VSE/ESA using Adabas system files.

The following topics are covered:

- Prerequisites
 - Installation Tape for Natural under VSE/ESA
 - Installation Procedure for Natural under VSE/ESA
 - Installation Verification for Natural under VSE/ESA
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Prerequisites

- VSE/ESA must be installed.
Version as specified under Operating/Teleprocessing Systems Required in the current Natural Release Notes.
- Adabas must be installed.
Version as specified under Natural and Other Software AG Products in the current Natural Release Notes.
- Approximately 15 MB space in the Adabas database.

Installation Tape for Natural under VSE/ESA

The installation tape contains the datasets listed in the table below. The sequence of the datasets and the number of library blocks needed are shown in the **Report of Tape Creation** which accompanies the installation tape.

dataset Name	Contents
NATnnn.SYSF	Example Natural system file
NATnnn.LIBR	LIBR backup file
NATnnn.INPL	Natural system objects
NATnnn.EXPL	Natural example objects
NATnnn.ERRN	Natural error messages

The notation *nnn* in dataset names represents the version number of the product.

The dataset type and the space each dataset requires on disk is shown in the **Report of Tape Creation**.

Copying the Tape Contents to Disk

The sample JCS supplied on tape for the installation of Natural assumes the existence of one library, which has the following sublibraries:

- installation sublibraries, one for each Software AG product.

In addition to these, you need

- one work sublibrary,
- one sublibrary for sample installation jobs for Natural.

You are recommended to create this library and the work sublibrary before you proceed any further.

Use the following job to create this library.

The size needed for the library depends on the number of products and versions which are to be loaded into this library later on; the following example uses 1200 TRK of a 3380 device as a recommended size:

In the // EXTENT statement, replace *vvvvvv* with the VOLSER of the pack where the dataset is to reside, and *nnnn* with the starting track of the dataset.

```

* $$ JOB JNM=SMADEF,CLASS=0,DISP=D,LDEST=(,...)
* $$ LST CLASS=A,DISP=D
// JOB SMADEF
// DLBL SAGLIB,'INSTALL.SMALIB',99/365,SD
// EXTENT ,vvvvvv,1,0,nnnn,1200
// EXEC LIBR,PARM='MSHP'
DEFINE LIB=SAGLIB
DEFINE SUB=SAGLIB.USRLIB,REUSE=AUTO,R=Y
/*
/&
* $$ EOJ

```

The above sample job assumes that standard label SAGLIB is defined for this library. You can use the following job to add this label to the standard label area:

In the // EXTENT statement, replace vvvvvv with the VOLSER of the pack where the dataset is to reside.

```

* $$ JOB JNM=STDLABEL,CLASS=A,DISP=D
* $$ LST CLASS=A,DISP=D
// JOB STDLABEL
// OPTION STDLABEL=DELETE
SAGLIB
/*
// OPTION STDLABEL=ADD
// DLBL SAGLIB,'INSTALL.SMALIB'
// EXTENT ,vvvvvv
/*
/&
* $$ EOJ

```

Copy the sublibrary containing the sample installation jobs from tape using the following JCS:

```

* $$ JOB JNM=NATJOBS,CLASS=0,DISP=D,LDEST=*,SYSID=1
* $$ LST CLASS=A,DISP=D
// JOB NATJOBS
// ASSGN SYS005,IGN
// ASSGN SYS006,cuu,VOL=Tnnnnn
// MTC REW,cuu
// MTC FSF,SYS006,nn
* Tape positioned at file ?, tape mark nn
* *** Now process NATnnn.LIBR - SUBLIBRARY NATnnnJ ***
// EXEC LIBR,PARM='MSHP'
RESTORE SUBLIB=SAGLIB.NATnnnJ:SAGLIB.NATnnnJ -
TAPE=SYS006 -
LIST=YES -
REPLACE=NO
/*
/*
/&
* $$ EOJ

```

Notation:

<i>cuu</i>	represents the physical unit address of the tape drive.
<i>nn</i>	represents the file sequence number as shown in the Report of Tape Creation.
<i>nnn</i>	represents the version number of the product.

If you are not using System Maintenance Aid, adapt and run the job NATTAPE from the job library to restore the Natural sublibrary from tape and make it known to MSHP.

All further datasets will be used direct from tape by the installation jobs.

Installation Procedure for Natural under VSE/ESA

Step 1: Load the System File

(Job I050, Step 0100)

If you are installing into an existing Natural 3.1 FNAT file, skip this step.

Load the empty Natural system file (dataset NATnnn.SYSF) using the ADALOD utility.

This file will contain all Natural objects supplied by Software AG. Its size depends on the number of products to be installed later. As a rule of thumb, 15 MB can be assumed for each major Software AG product.

The following ADALOD parameters must not be altered:

```
ISNREUSE=YES  
VERSION=6
```

To avoid Natural errors NAT9988 and NAT7397 after reorganization of the FNAT system file using ADAULD/ADALOD, the parameter USERISN=YES should be left as set by System Maintenance Aid.

The file number *fnat* of the FNAT system file can be chosen as described under Natural profile parameter FNAT (see Parameter Reference in the Natural Reference documentation).

Step 2: Load the User System File

(Job I050, Step 0101)

You have the following options:

- You can use a new FUSER file for Version 3.1.
- You can use an existing Version 2.3 FUSER file to be shared by Versions 2.3 and 3.1.
- You can use an existing Version 2.2 FUSER file to be used by Version 3.1 only.
- You can use an existing Version 2.2 FUSER file to be shared by Versions 2.2 and 3.1.

Reuse an Existing 3.1 FUSER System File

If you want to use the existing Natural Version 3.1 FUSER system file, skip this step.

Use a New 3.1 FUSER System File - First-Time Installation

If you do **not** want to share the FUSER system file, proceed as follows:

Load the empty Natural user file contained in dataset NATnnn.SYSF using the ADALOD utility.

In this file, all user-written Natural programs are stored.

The following ADALOD parameters **must not** be altered:

```
ISNREUSE=YES  
VERSION=6
```

The file number *fuser* of the FUSER system file can be chosen as described under Natural profile parameter FUSER (see Parameter Reference in the Natural Reference documentation).

For the use of a new and empty FUSER system file for Natural Version 3.1, no additional system-file-related actions are necessary.

Reuse an Existing 2.3 FUSER System File - Migration from Natural Version 2.3

If you want to use the existing Natural Version 2.3 FUSER system file and you do not want to share the FUSER system file, skip this step.

Using a Version 2.3 FUSER File to be shared by Natural Versions 2.3 and 3.1

If you use an existing Natural Version 2.3 FUSER system file to be shared by Natural Versions 2.3 and 3.1, you must upgrade your Natural Version 2.3 installation to Version 2.3.3 or 2.3.4.

Caution:

Do not use any Natural Version 2.3.2 or 2.3.1 utilities to manipulate libraries that contain objects of the type "class"! This would cause internal inconsistencies to the effect that Natural 3.1 would then no longer be able to find these objects in the FUSER file.

Using a Version 2.2 FUSER File to be shared by Natural Versions 2.2 and 3.1

If you use an existing Version 2.2 FUSER system file to be shared by Natural Versions 2.2 and 3.1, the version of the shared file must be at least 2.2.8.

Note:

If you already performed the steps described below (in the course of your Natural 2.3 installation) to use an existing FUSER file to be shared by Natural Versions 2.2 and 2.3, that file can be considered a Version 2.3 file. For such a file, see the preceding section Using a Version 2.3 FUSER File to be shared by Natural Versions 2.3 and 3.1.

To use a shared 2.2/3.1 FUSER file, before you install Natural Version 3.1, apply the following update INPL datasets to your Natural Version 2.2:

- NA2875 (if INPL Update NA228A2 not yet applied)
- NT2801 (only if Natural Connection is installed)
- NE2841 (only if Natural Security is installed and INPL Update NE22866 not yet applied)
- NA228B4 (only if Natural Security is installed)
- NQ3404 (only if Natural for DB2 is installed)
- NQ3405 (only if Natural for SQL/DS is installed)

Install Natural Version 3.1 as described in the operating-system-specific installation documents.

After you have installed Natural Version 3.1, replace all USR* modules you have copied from library SYSEXT into application libraries located in the Version 2.2 FUSER with the objects from the Version 3.1 library SYSEXT. The objects in the Version 3.1 library SYSEXT are cataloged with Version 2.2.

After you have discarded your Natural Version 2.2 environments, you should keep only modules belonging to your applications in library SYSTEM in FUSER and delete all Software AG objects from that library. If you are not sure which objects are part of your application and which are part of Natural, refer to the information given in SAGSIS Problem No. 176762.

The reasons for the above steps are as follows:

Under Version 2.2, Natural system programs were loaded with INPL into the library SYSTEM on the FUSER file; these programs are not compatible with Natural Version 3.1. The above update INPL datasets replace these programs with ones that can be executed under Versions 2.2 and 3.1.

With Version 2.2, Software AG objects to be loaded into the library SYSTEM were loaded into both the system files FNAT and FUSER; as of Version 2.3, they are only loaded into the FNAT file (that is, SYSTEM on FUSER no longer contains Software AG objects). Also, as of Version 2.3, the library SYSTEM on the FNAT file is the default steplib for user applications; with Version 2.2, it is not.

Attention:

Do not use any Version 2.2 Natural utilities to manipulate libraries that contain objects of the type "class"! This would cause internal inconsistencies to the effect that Natural 3.1 would then no longer be able to find these objects in the FUSER file.

Using a Version 2.2 FUSER File for Natural Version 3.1 Only - Migration from Natural Version 2.2

If you use an existing Version 2.2 FUSER system file for Natural Version 3.1, the version of the shared file must be at least 2.2.8.

To use a Version 2.2 FUSER file for Natural Version 3.1 only, that is, without using Natural Version 2.2 in parallel on that file, perform the following steps:

1. With the Version 2.2 SYSMAIN utility, move the entire contents of the Version 2.2 library SYSTEM on the FUSER file to a backup library.
2. Install Natural Version 3.1.
3. With the Version 3.1 SYSMAIN utility, copy all of your own application objects - but no Software AG objects that are part of Natural itself! - from the backup library back to the library SYSTEM of the FUSER file. If you are not sure which objects are part of your application and which are part of Natural, refer to the information given in SAGSIS Problem No. 176762.

The reasons for the above steps are as follows:

- Under Version 2.2, Natural system programs were loaded with INPL into the library SYSTEM on the FUSER file; these programs are not compatible with Natural Version 3.1. The above update INPL datasets replace these programs with ones that can be executed under Versions 2.2 and 3.1.
- With Version 2.2, Software AG objects to be loaded into the library SYSTEM were loaded into both the system files FNAT and FUSER; as of Version 2.3, they are only loaded into the FNAT file (that is, SYSTEM on FUSER no longer contains Software AG objects). Also, as of Version 2.3, the library SYSTEM on the FNAT file is the default steplib for user applications; with Version 2.2, it is not.

Step 2.1: Load the FDIC System File

(Job I050, Step 0103)

Skip this step

- if you want to install Predict (in this case, use the corresponding installation step in the Predict Installation documentation), or
- if you want to use an existing FDIC system file (an existing FDIC system file can be shared by Natural Versions 2.2 and 3.1, or Versions 2.3 and 3.1), or
- if you do not use your own FDIC system file.

If Predict is used, the sharing of the FDIC system file requires that Predict Version 3.4.2 has been installed.

Load the empty FDIC file contained in dataset NATnnn.SYSF using the ADALOD utility, as described below.

The following ADALOD parameters must not be altered:

```
ISNREUSE=YES  
VERSION=6
```

The file number *fdic* of the FDIC system file can be chosen as described under Natural Profile parameter FDIC (in the section Profile Parameters in the Parameter Reference documentation).

Step 2.2: Load the FSEC System File

Skip this step,

- if you do not use Natural Security, or
- if you want to use an existing FSEC system file, or
- if you do not want to use an own FSEC system file.

If you use Natural Security, refer to Installing Natural Security (in the Natural Installation Guide for Mainframes).

An existing Version 2.3.3 or 2.3.4 FSEC system file can be shared by Natural Security Versions 2.3 and 3.1. See Using Multiple Versions of Natural Security (in the Release Notes for Natural Version 3.1 in the RN Archive on the Natural Documentation CD).

Step 3: Load the Scratch-Pad File

(Job I050, Step 0102)

The scratch-pad system file can be used exclusively by the new Natural version or it can be shared by different versions of Natural.

If you do not want to use a scratch-pad file, skip this step.

If you do want to use a scratch-pad file; that is, if you want to use read-only system files (ROSY=ON), see also Natural Scratch-Pad File (in the Natural Operations for Mainframes documentation). Proceed as follows:

Load the empty scratch-pad file contained in dataset NAT nnn .SYSF using the ADALOD utility, as described below.

The following ADALOD parameters must not be altered:

```
ISNREUSE=YES  
VERSION=6
```

For the optional scratch-pad file inclusion, the following NATPARM parameters must be added or, if already present, updated with:

```
LFILE=(212,dbid,fnr)  
ROSY=ON
```

If you use SMA:

To be able to use read-only system files, set the SMA parameter NAT-SCRF=Y and ROSY=ON.

Step 4: Assemble the Natural Interface Module

(Job I055, Step 0100)

Set the parameters in the source of the module NATVSE contained in the sublibrary SAGLIB.NAT nnn to fit your site requirements.

For a description of the NTVSE generation parameters, refer to NTVSE Macro - Generation Parameters for Natural under VSE/ESA (in the Natural Operations for Mainframes documentation).

Assemble and link the Natural VSE/ESA interface module "NATVSE" contained in the dataset NAT nnn .LIBR.

Step 5: Create the Parameter Module

(Job I060, Steps 0010, 0015)

Create the Natural batch parameter module (Job I060, Steps 0010).

The following parameters in the parameter module must be modified for the installation:

```
FNAT=(dbid,fnat)
FUSER=(dbid,fuser)
```

For *dbid*, *fnat* and *fuser*, use the values you specified when loading the system files (see Steps 1 and 2).

For all other parameters, you can generally use the default values.

Modify only the values of those parameters whose default values do not suit your requirements. Especially, if you are using a 24-bit external SORT and a shared Natural nucleus linked with RMODE(ANY), you must set RCA=NAT2SORT; see below.

For a detailed description of the individual parameters contained in the parameter module, refer to the Parameter Reference overview (in the Natural Reference documentation).

Assemble and link the parameter module.

Step 6: Link the Natural Nucleus

(Job I060, Step 0020)

The following alternatives exist:

- link a batch front-end (Job I060, Step 0020) and link a shared nucleus (Job I060, Step 0105) or
- link a non-shared nucleus (Job I060, Step 0020).

Using Alternative 1

If you use SMA: Ensure that the SMA parameter SHARED-NUC is set to Y.

1. Link a batch front-end (Job I060, Step 0020).

The following modules must be included (include module NATVSE first):

Module	Function
NATVSE	Batch Natural driver
NATWKFD	Work file support
PRM020BA	Generated parameter module created in Step 5.
ADAUSER	Adabas link module

To access the shared nucleus, ensure that the parameter NUCNAME in the module NATPARM contains the name of the shared module linked in Job I060, Step 0105.

2. Link a shared nucleus (Job I060, Step 0105).

For a list of the modules included, see Natural Shared Nucleus under OS/390 and VSE/ESA (in the Natural Operations for Mainframes documentation).

Using Alternative 2

Link a non-shared nucleus (Job I060, Step 0020).

If you use SMA:

Ensure that parameter SHARED-NUC is set to N.

If you do not use SMA:

Merge all INCLUDE statements and corresponding DD cards from Job I060, Step 0105 (shared nucleus) into Job I060, Step 0020 (front-end).

Step 7: Link the SORT Nucleus for 24-Bit External SORT

(Job I060, Step 0110)

If you use SMA:

Ensure that the SMA parameter 24BIT-SORT is set to Y.

This step is required if you use a shared nucleus linked with RMODE(ANY) **and** if you use a 24-bit external SORT, otherwise omit this step.

Link the module NAT2SORT to a phase with the same name and the attributes AMODE(31), RMODE(24) and entry point NATSRLNK.

To access this phase, ensure that RCA=NAT2SORT has been specified in your NATPARM or as a dynamic profile parameter.

Step 8: Link the Global Buffer Pool Modules

(Job I060, Steps 0120 and 0125)

This step is required if you want to use global buffer pools in VSE/ESA. See Global Buffer Pool under VSE/ESA (in the Natural Operations for Mainframes documentation)

Step 9: Load the System Programs

(Job I061, Step 0100)

Use the Natural system command INPL to load the Natural system objects (dataset NAT nnn .INPL) into the Natural system files.

Step 10: Load the Error Messages

(Job I061, Step 0102)

Load the Natural error messages file (dataset NAT nnn .ERRN) using the program ERRLODUS (described in the Natural SYSERR Utility documentation).

Step 11: Load the Examples

(Job I061, Step 0103)

Use the system command INPL to load the Natural example objects (dataset NAT nnn .EXPL) into the Natural system file.

Step 12: Load Possible INPL Updates

This step is only required if there are any INPL updates for Natural Version 2.3 on the installation tape. Please refer to the **Report of Tape Creation**.

Use the Natural system command INPL to load any Natural INPL updates.

Installation Verification for Natural under VSE/ESA

For base Natural, there are no specific installation verification procedures.

After the last step of the installation procedure has been successfully performed, check that the following results are available:

- Communication between Adabas and Natural is working.
- The Natural system files have been loaded.
- Batch Natural is operational.